

REMARKS

The Office Action dated May 27, 2003 has been carefully reviewed. Applicants thank the Examiner for indicating that claims 33-59 are free of the prior art and for providing guidance as to how the claims could be rewritten to overcome the remaining rejections. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Claims 33-40 and 42 have been newly amended. Claims 41 and 43-59 have been newly canceled without disclaimer or prejudice. Applicants reserve the right to pursue the subject matter of any canceled claims in one or more divisional or continuation applications. Claims 60-65 have been newly added.

Support for the amendments to claims 33-40 and 42 is found, for example, in previous claims 33-40 and 42, respectively, and elsewhere throughout the specification. Support for new claim 60 is found, for example, on page 5, lines 8-15, and elsewhere throughout the specification. Support for new claim 61 is found, for example, on page 6, lines 1-5, and elsewhere throughout the specification. Support for new claim 62 is found, for example, on page 6, lines 17-29; page 7, lines 1-23; and, elsewhere throughout the specification. Support for new claim 63 is found, for example, on page 8, lines 24-28; page 9, lines 1-3; and, elsewhere throughout the specification. Support for new claim 64 is found, for example, in Example 3; page 9, lines 4-6; and, elsewhere throughout the specification. Support for new claim 65 is found, for example, page 8, lines 22-29; original claims 25-27, and, elsewhere throughout the specification.

No new matter has been added by these claims and entry is respectfully requested. As a result of these amendments, claims 33-40, 42 and 60-65 are presently before the Examiner.

Response to the notice to comply with sequence rules

The Examiner contends that sequence identifiers are missing from the specification and that the application fails to comply with 37 C.F.R. §§ 1.821 through 1.85. Applicants have amended the specification to include sequence identifiers where appropriate and consider this

reply to be responsive to the previous Office Action. If Applicants have failed to insert sequence identifiers where appropriate, the Office is requested to specifically point out where the identifiers are needed in the next communication so that Applicants can provide the information required.

Applicants submit herewith a substitute sequence listing in computer readable form (CRF) and the required "Statement Accompanying Sequence Listing" stating that the substitute sequence listing submitted concurrently herewith does not include matter which goes beyond the content of the application as filed and that the information recorded on the diskette submitted concurrently herewith is identical to the written substitute sequence listing.

Therefore, the Examiner is respectfully requested to withdraw the requirement to comply to the sequence rules.

Response to the requirement for a new abstract

The Examiner contends that the abstract is not descriptive of the instantly claimed invention. Applicants have hereby amended the abstract in conformance with the Examiner's suggested language. Therefore, the Examiner is respectfully requested to withdraw the requirement for a new abstract.

Response to the requirement for a new title

The Examiner contends that the title is not descriptive of the instantly claimed invention. Applicants have hereby amended the title as required by the Examiner. Therefore, the Examiner is respectfully requested to withdraw the requirement for a new title.

Response to the objections to the claims due to informalities

The Examiner has rejected claims 34-35, 37-40, 42-46 and 49-56 because of certain alleged informalities. Applicants have corrected each of these informalities in the presently pending claims or canceled the claims in question. Therefore, the Examiner is respectfully requested to withdraw the objections.

Applicants note the rejection under 35 USC § 102(b) as being anticipated by Fisher *et al.* has been withdrawn.

Response to the rejections under 35 U.S.C. § 112 (first paragraph)

Rejection of claims 36-41

Claims 36-41 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse the rejection.

According to the rejection, *E. coli* strain KV832 is essential to the claimed invention and must be obtainable by a repeatable method set forth in the specification or otherwise be readily available from the public. The Office, in asserting that a deposit is required for enablement purposes, alleges the specification fails to disclose a repeatable process to obtain the KV832 strain and argues it is not apparent if the strain is readily available to the public.

Contrary to the arguments of the Office, the specification does in fact disclose a repeatable process to obtain the KV832 strain. Applicants bring the document by Kiel *et al.* (Kiel *et al.*, “A general method for the construction of *Escherichia coli* mutants by homologous recombination and plasmid segregation,” Mol. Gen. Genet. 207: 294-301 (1987)) [Kiel] to the attention of the Office (copy attached as Exhibit A). See, specification page 14, lines 9-10, citing Kiel *et al.*.

According to Kiel, prior to the publication of the article, production of *E. coli* mutants was limited due to the need for special *E. coli* strains, special plasmids and special phages. Kiel’s publication is an advancement in the art since the publication teaches a general method for obtaining mutants of *E. coli* that does not involve the use of such special strains, plasmids or phages, thus simplifying the introduction of mutations into the *E. coli* chromosome. The method makes use of the fact that many recombinant multicopy plasmids are segregationally unstable in *E. coli*, thus allowing mutants to be easily isolated by selection for cells in which the mutant gene (marked by an antibiotic resistance marker) has been integrated into the chromosome and from which the donating plasmid has been lost.

The Kiel method involves construction of plasmid pKVB2, a pBR322 based plasmid, which carries the complete *glgB* gene. The plasmid is then transformed into *E. coli* JM83, an *E. coli* strain which is publicly available. Plasmid pBR322 is well suited for use in the method

since a) the plasmid is a well known, commonly used plasmid in which many genes have already been cloned ; b) it contains a Tcr gene which allows plasmid-free cells to be easily detected; and, c) recombinant plasmids based on pBR322 are segregationally unstable in *E. coli*.

Thus, the Kiel publication describes a general method which allows mutants to be simply and efficiently isolated via gene replacement and plasmid loss. It is clear from Kiel that one of ordinary skill in the art would be able to produce *E. coli* KV832 by a readily repeatable process known in the art. Therefore, since the specification is enabling for the production of *E. coli* KV832, no deposit is required. In view of the arguments presented above, reconsideration and withdrawal of the rejection is respectfully requested.

Rejection of claims 41 and 43-59

Claims 41 and 43-59 are rejected under 35 U.S.C. § 112, first paragraph, purportedly because the specification, while being enabling for isolated cassava nucleic acids with 88% identity to SEQ ID NO. 28 and encoding SBEII, and nucleic acids encoding SEQ ID NO. 29, methods of using those nucleic acids to alter starch properties in cassava, and plants transformed with these nucleic acids, does not reasonably provide enablement for the other claimed sequences and portions of sequences. Applicants respectfully traverse the rejection.

While not acquiescing to the rejection and in an effort to further prosecution, Applicants have newly canceled claims 41 and 43-59. Therefore, the Examiner is respectfully requested to withdraw this rejection.

Claims 41 and 43-59 are also rejected under 35 U.S.C. § 112, first paragraph, as purportedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the invention. Applicants respectfully traverse the rejection.

As discussed above, while not acquiescing to the rejection and in an effort to further prosecution, Applicants have newly canceled claims 41 and 43-59. Therefore, the Examiner is respectfully requested to withdraw this rejection.

Response to the rejection under 35 U.S.C. § 112, second paragraph

Claims 33-59 are rejected under 35 U.S.C. § 112, second paragraph, as purportedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Applicants respectfully traverse the rejection.

Applicants have corrected the alleged indefiniteness in each of the presently pending claims or canceled the claims in question. Therefore, the Examiner is respectfully requested to withdraw the requirement.

Conclusion

The foregoing amendments and remarks are being made to place the application in condition for allowance. Applicants respectfully request reconsideration and the timely allowance of the pending claims. A favorable action is awaited. Should the Examiner find that an interview would be helpful to further prosecution of this application, he is invited to telephone the undersigned at his convenience.

If there are any additional fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

Date: September 29, 2003

By:

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Attachment: Exhibit A (Kiel *et al.*, 1987)

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Nucleic acids from cassava encoding starch branching enzyme II (SBEII) and their use

This invention provides isolated cassava nucleic acids encoding starch branching enzyme II (SBEII); constructs, vectors and host cells comprising the nucleic acids; and methods of using the nucleic acids to alter gene expression in cassava to obtain starch with altered properties.